SEPSIS IDENTIFICATION & MANAGEMENT PROTOCOL

Introduction

Good hygiene procedures and effective infection prevention and control are of paramount importance in protecting patient health, as well as upholding the reputation of primary care providers and, ultimately, The Federation (NICS).

Sepsis, also referred to as blood poisoning or septicaemia, is a potentially life-threatening condition triggered by an infection or injury which causes the body's immune system to go into overdrive. If it is treated quickly, most patients will have a full recovery with no lasting health issues, but if not treated it can lead to septic shock, loss of limbs, organ failure and even death. Studies indicate that one in three people with sepsis will die; the condition kills more people than breast, bowel and prostate cancer combined.

The **Health and Social Care Act 2008** Code of Practice for Health and Adult Social Care on the Prevention and Control of Infections and Related Guidance sets out the key activities that should be undertaken by all NHS organisations with respect to good practice.

Additionally, there are substantial long-term physical and psychological health problems associated with sepsis which significantly reduce patients' independence and increase their contact with the healthcare profession.

Sepsis – early response from Practices

A report by Health Education England ('***Getting it right - the current state of sepsis education and training for healthcare staff across England***'), highlights numerous examples of good practice in relation to sepsis education and training. It also identifies gaps in the provision of sepsis education and training, particularly for healthcare professionals who work in community and primary care settings.

Staff Training
NICS must conduct staff training in recognising and responding to acutely unwell or deteriorating patients who may have sepsis. This is co-ordinated by NICS managers and in conjunction with any of the practices own training.
Clinicians attend relevant training/study as part of their ongoing professional development, which are listed in their records of training.

Treatment and Triage Process
The Federation (NICS) have a triage process in place which can identify and quickly respond to identified or suspected cases of sepsis. Using the tool available from the UK Sepsis Trust included here;

Guidance from NHS England and NICE recommends that people with suspected sepsis are assessed for risk factors and then clinically using a structured set of observations (temperature, heart rate, respiratory rate, level of consciousness, oxygen saturation) to stratify risk of severe illness or death.

Equipment and diagnosis
NICS has access to the appropriate equipment to assess possible instances of sepsis infection – this includes blood pressure monitors, temperature monitors, and pulse oximetry for adults and children.

Vaccination Programme
Influenza vaccination programmes should have a high coverage of the Federation population, especially patients over 65, pregnant women and patients with long-term conditions.

Patient information
NICS will provide information and guidance on sepsis for higher-risk patients and their carers, e.g. patients with long-term conditions, patients who have been prescribed immune-suppressive medication. The UK Sepsis Trust has a series of support material including a patients' guide, booklets etc. https://sepsistrust.org/get-support/resources/

Sepsis Screening
NICS uses appropriate sepsis clinical screening, assessment and audit tools to help in identifying any sepsis infections.

NB: It is the responsibility of the individual(s) undertaking sepsis screening to ensure they have the knowledge and understanding that is required.

Hand Hygiene
NICS has a Hand Hygiene Procedure in place to reduce the spread of infection. This is available to all staff and is reviewed annually.

Symptoms

(Guidance taken from NHS Choices and NHS Inform and NICE)

There are three stages of sepsis;

- Sepsis
- Severe sepsis
- Septic shock.

Sepsis can occur while recovering from a procedure, but this isn't always the case. Because it can begin in different parts of the body, it can have many different symptoms - early signs

in older children and adults include a fever or low body temperature, as well chills, shivering, increased heartbeat and rapid breathing.

Symptoms of sepsis include:

- A fever above 38ºC or a temperature below 36ºC
- Heart rate higher than 90 beats/min
- Breathing rate higher than 20 breaths per minute
- Probable or confirmed infection

They must have two of these symptoms before a doctor can diagnose sepsis.

Sepsis symptoms in older children and adults
In some cases, symptoms of more severe sepsis or septic shock (when your blood pressure drops to a dangerously low level) develop soon after. These can include:

- feeling dizzy or faint
- a change in mental state – such as confusion or disorientation
- diarrhoea
- nausea and vomiting
- slurred speech
- severe muscle pain
- severe breathlessness
- less urine production than normal (e.g. not urinating for a day)
- cold, clammy and pale or mottled skin (purple or reddish patches)
- loss of consciousness

Sepsis symptoms in children under 5

Parents should be advised to go straight to A&E or call 999 if their child displays any of these symptoms;

- looks mottled (purple or reddish patches), bluish or pale
- Lethargic or difficult to wake
- Abnormally cold to touch
- Rapid breathing
- A rash that does not fade when you press it
- Fits or convulsions

Temperature

- Over 38C in babies under three months
- Over 39C in babies aged three to six months
- High temperature in a child who cannot be encouraged to show interest in anything
- Low temperature (below 36C – check three times in a 10-minute period)

Breathing

- Finds it much harder to breathe than normal
- Makes "grunting" noises with every breath
- Can't say more than a few words at once (for older children who normally talk)
- Breathing that obviously "pauses"

Toilet/nappies

- Has not had a wee or wet nappy for 12 hours

Eating and drinking

- New baby under one month old with no interest in feeding
- Not drinking for more than eight hours (when awake)
- Bile-stained (green), bloody or black vomit/sick

Activity and body

- Soft spot on a baby's head is bulging
- Eyes look "sunken"
- Child cannot be encouraged to show interest in anything
- Baby is floppy
- Weak, "whining" or continuous crying in a younger child
- Older child who appears confused
- Not responding or very irritable
- Stiff neck, especially when trying to look up and down

Severe sepsis

Severe sepsis occurs when there's organ failure. You must have one or more of the following signs to be diagnosed with severe sepsis:

- patches of discoloured skin
- decreased urination
- changes in mental ability
- low platelet (blood clotting cells) count
- problems breathing
- abnormal heart functions
- chills due to fall in body temperature
- unconsciousness
- extreme weakness

Septic shock

Symptoms of septic shock include the symptoms of severe sepsis, plus a significant drop in blood pressure that can lead to respiratory or heart failure, stroke, failure of other organs, and death.

Possible complications include:

- Heart failure
- Abnormal blood clotting
- Kidney failure
- Respiratory failure
- Stroke
- Liver failure
- Loss of a portion of the bowel
- Loss of all or parts of limbs

Sepsis Causes and Risk Factors

Bacterial infections are most often the cause of infection, however sepsis can also result from other infections. It can begin anywhere bacteria or viruses enter the body; it could be something as minor as a scratch, or a more serious medical problem such as appendicitis, pneumonia, meningitis, or a urinary tract infection. An infection of the bone (osteomyelitis) could lead to sepsis. In people who are hospitalised, the bacteria that trigger sepsis can enter the body through IV lines, surgical incisions, urinary catheters, and in the case of poor hygiene, even bed sores.

There are certain groups of people at greater risk of infection;

- People with impaired immune systems due to illness e.g. HIV/AIDS or cancer
- People taking immuno-suppressive drugs e.g. steroids and those used to prevent rejection of transplanted organs
- Very young babies
- The elderly, especially those with health problems
- People recently hospitalised and/or had major surgeries
- Patients with diabetes

It is also important to note that a septic patient is not like an accident victim or heart attack patient, where the diagnosis and the need for urgent treatment can be immediately obvious. Sepsis in patients can present itself in many ways, with vague symptoms, and may be elderly with several illnesses (called co-morbidities) which could disguise and complicate an accurate diagnosis.

Types of infections associated with sepsis include;

- lung infection (pneumonia)
- appendicitis
- Peritonitis (infection of the thin layer of tissue that lines the inside of the abdomen)
- urinary tract infection (infection of the bladder, urethra or kidneys)
- cholecystitis (an infection of the gallbladder) or cholangitis (bile ducts)
- skin infections like cellulitis – this can be caused by an intravenous catheter that's been inserted through the skin to give fluids or medication
- infections after surgery
- infections of the brain and nervous system – such as meningitis or encephalitis

- flu (in some cases)
- osteomyelitis (bone infection)
- endocarditis (heart infection)

Sepsis treatment

Sepsis can quickly progress to septic shock and death if left untreated. There are a number of medications to treat sepsis, including:

- antibiotics via IV to fight infection
- vasoactive medications to increase blood pressure
- insulin to stabilise blood sugar
- corticosteroids to reduce inflammation
- painkillers

Severe sepsis may also require large amounts of IV fluids and a respirator for breathing. Dialysis might be necessary if the kidneys are affected.

In some cases, surgery may be needed to remove the source of an infection. This includes draining a pus-filled abscess or removing infected tissue.

Recognising sepsis in primary care

Many patients are seen and managed for infections in primary care, but only a very small proportion will have sepsis. The skills and judgment of primary care clinicians will be crucial and must be adequately supported.

NICE recommends that people with suspected sepsis are assessed for risk factors and then clinically using a structured set of observations (temperature, heart rate, respiratory rate, level of consciousness, oxygen saturation) to stratify risk of severe illness or death.

In non-face-to-face assessments, if a clinician suspects sepsis and has no access to physiological measurements they should arrange for the patient to attend a facility where these measurements can be recorded without delay.

Where a primary care clinician suspects sepsis and the results of physiological observations suggest a risk of severe illness or death then the clinician should arrange urgent referral and transfer of the patient to an acute hospital for further assessment and treatment immediately.

“Safety Netting” in Primary Care

The NICE Quality Standards on sepsis published in September 2017 include a requirement for “safety netting”. This means that where a patient with an infection has been clinically assessed and thought not to have sepsis, the patient/carer is given information on what to look out for to prompt them to seek further clinical assessment.

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The GP software providers have been asked to include sepsis safety-netting resources that GPs can pass on to patients/carers, especially the parents of children with infections.

Where a primary care clinician has considered and discounted a diagnosis of sepsis, they should provide appropriate safety-netting information to the patient/carer in case of later deterioration.

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Assessment

People with suspected sepsis require face-to-face assessment to determine whether they need urgent intervention. Using a structured set of observations for assessing physiological symptoms should ensure that people at risk of severe illness or death from sepsis receive timely and appropriate treatment.

See **Appendix 2** for a receptionists' guide to Sepsis awareness

Sepsis – preventing infection

Taking steps to prevent the spread of infection can reduce your risk of developing sepsis. These include:

- Patients should stay up to date on vaccinations (flu, pneumonia, and other infections)
- Practicing good hygiene - proper wound care, handwashing, and bathing regularly.
- Getting immediate care if they develop signs of infection.

Identifying people with suspected Sepsis

The following guidance provides links to the recommendations from the National Institute for Health and Care Excellence (NICE);

- children under 5 out of hospital
- children under 5 in hospital
- children aged 5 to 11 years out of hospital
- children aged 5 to 11 years in hospital
- children and young people aged 12 to 17 out of hospital
- children and young people aged 12 to 17 in hospital
- adults aged 18 and over out of hospital
- adults aged 18 and over in hospital

See **Appendix 1** for a Risk stratification tool for adults, children and young people aged 12 yrs and over with suspected sepsis

Further information

Sepsis: recognition, diagnosis and early management: Resources section
National Institute for Health and Care Excellence

Sepsis Guidance Implementation Advice for Adults (**NHS England**)
https://www.england.nhs.uk/wp-content/uploads/2017/09/sepsis-guidance-implementation-advice-for-adults.pdf

The UK Sepsis Trust : A UK charity raising awareness among patients and healthcare professionals that developed the '***Sepsis Six***' practical tool to help healthcare professionals deliver basics of Sepsis care
https://sepsistrust.org

NHS SAM (Sepsis Assessment & Management)
What to look for if your child has a temperature and you are concerned.

This quick assessment guide can be downloaded here:


sam-sepsis-leaflet.pdf

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APPENDIX 1: RISK STRATIFICATION FOR ADULTS, CHILDREN & YOUNG PEOPLE (12 AND OVER)

This document has been created using NICE guidance and recommendations
NICE guideline NG51 : https://www.nice.org.uk/guidance/ng51

Category	High-Risk Criteria	Moderate to high-risk criteria	Low-Risk criteria
History	Objective evidence of new altered mental state	History from patient, friend or relative of new onset of altered behaviour or mental state History of acute deterioration of functional ability Impaired immune system (illness or drugs including oral steroids) Trauma, surgery or invasive procedures in the last 6 weeks	Normal behaviour
Respiratory	Raised respiratory rate: 25 breaths per minute or more New need for oxygen (40% FiO2 or more) to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)	Raised respiratory rate: 21–24 breaths per minute	No high risk or moderate to high risk criteria met
Blood Pressure	Systolic blood pressure 90 mmHg or less or systolic blood pressure more than 40 mmHg below normal	Systolic blood pressure 91–100 mmHg	No high risk or moderate to high risk criteria met
Circulation and hydration	Raised heart rate: more than 130 beats per minute Not passed urine in previous 18 hours. For catheterised patients, passed less than 0.5 ml/kg of urine per hour	Raised heart rate: 91–130 beats per minute (for pregnant women 100–130 beats per minute) or new onset arrhythmia Not passed urine in the past 12–18 hours For catheterised patients, passed 0.5–1 ml/kg of urine per hour	No high risk or moderate to high risk criteria met
Temperature		Tympanic temperature less than 36°C	
Skin	• Mottled or ashen appearance • Cyanosis of skin, lips or tongue • Non-blanching rash of skin	Signs of potential infection, including redness, swelling or discharge at surgical site or breakdown of wound	No non-blanching rash

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APPENDIX 2: SEPSIS AWARENESS FOR RECEPTIONISTS

The following page is a guide for receptionists to recognise any possible symptoms of sepsis.

The image file can be downloaded and used as a separate image, or you can download the following page and provide a copy to reception staff.

Sepsis awareness reception guide.png

Instructions for opening Image file

Copy/drag the icon to your desktop (or your chosen folder).

Double-click and open as an image.

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